

Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Withdrawn) A method for producing nanocomposites, comprising: providing a mixture of polymer and nanotubes; shear mixing the mixture in an extruder to disperse the nanotubes within the polymer; extruding the mixture from the extruder; and drawing the mixture prior to solidification of the mixture.
2. (Withdrawn) The method of claim 1, wherein the extruder is a micro-scale extruder having conical co-rotating screws.
3. (Withdrawn) The method of claim 2, wherein the extruder includes a backflow channel that allows re-circulation of the mixture through a barrel of the extruder.
4. (Withdrawn) The method of claim 1, wherein extruding the mixture comprises: extruding the mixture through a die.
5. (Withdrawn) The method of claim 4, wherein the die is rectangular and extruding through a rectangular die forms a film from the mixture.
6. (Withdrawn) The method of claim 5, comprising: passing the film over a chill roller.
7. (Withdrawn) The method of claim 1, wherein providing a mixture of polymer and nanotubes comprises: dispersing the nanotubes in a solvent; and sonicating the resulting mixture.
8. (Withdrawn) The method of claim 1, wherein providing a mixture of polymer and nanotubes comprises: dissolving a polymer in the solvent; and drying to remove the solvent.
9. (Withdrawn) The method of claim 8, comprising: melting the mixture prior to extrusion.
10. (Withdrawn) The method of claim 1, wherein drawing the mixture is performed at a draw ratio of about 5.
11. (Withdrawn) The method of claim 1, wherein the polymer is selected from the group consisting of: thermoplastic polymers and thermoset materials.
12. (Withdrawn) The method of claim 1, wherein the nanotubes are carbon nanotubes.
13. (Withdrawn) The method of claim 1, comprising: recirculating the mixture through the extruder through a backflow path.

14. (Withdrawn, Currently Amended) The method of claim 1, comprising: controlling the viscosity of the mixture by controlling a temperature of the extruder;

15. (Withdrawn) A film produced from the nanocomposite of claim 1.

16. (Currently Amended) A nanocomposite, comprising: a plurality of nanotubes dispersed in a polymer matrix, wherein the nanotubes are mechanically aligned in a principal direction to a standard deviation from the principal direction of less than $\pm 15^\circ$, wherein the nanocomposite is a continuous ribbon.

17. (Original) The nanocomposite of claim 16, wherein the polymer is selected from the group consisting of: thermoplastic polymers and thermoset materials.

18. (Canceled)

19. (Withdrawn) A method for producing nanocomposites, comprising: providing a mixture of polymer and nanotubes, wherein the nanotubes are selected according to their diameters; shear mixing the mixture to disperse the nanotubes within the polymer; extruding the mixture from the extruder; and drawing the mixture prior to solidification of the mixture to form a nanocomposite, wherein the distribution of nanotube diameters is selected according to a desired stiffness of the nanocomposite.

20. (New) The nanocomposite of claim 16, wherein the polymer comprises polystyrene.

21. (New) The nanocomposite of claim 16, wherein the continuous ribbon has a thickness in a range from 80 μ m to 120 μ m.